Refraction lab

purpose:

Hypothesis:

Procedure "refer to lab p45-46"

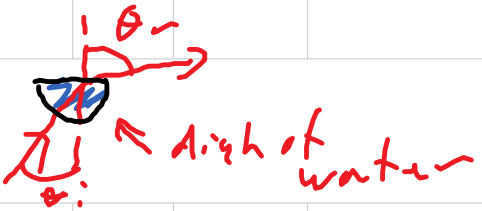
observations

measure @ from normal

Part 1 air to water

angle of incidence θ_i	angle of refraction θ_r	Sinθ_i	Sin θ_r	sinθ_i /sin θ_r	comments
0					
10					
20					
30					

...



Part 2 water to air

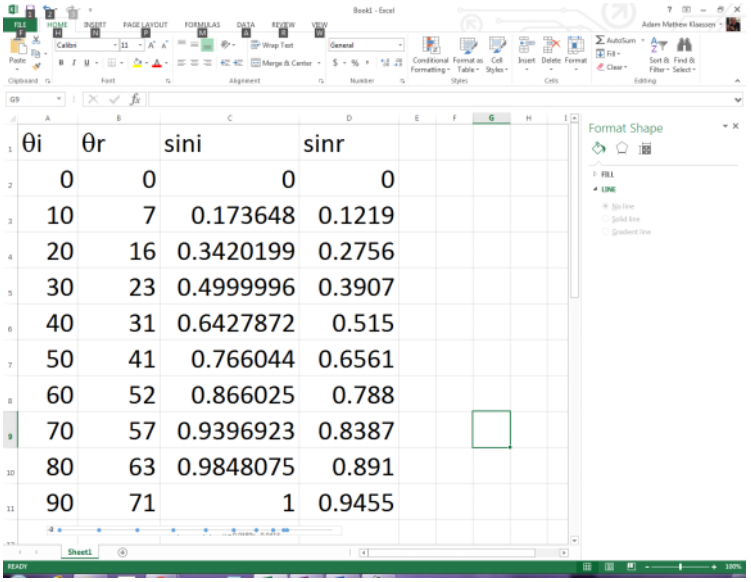
angle of incidence θ_i	angle of refraction θ_r	Sinθ_i	Sin θ_r	sinθ_i /sin θ_r	comments
0					
10					
20					

30					

critical angle is the last angle where there is still refraction. Measure it as precisely as you can.
questions in labbook
graph of sini vs sin r using a spread sheet
conclusion
sources of uncertainty

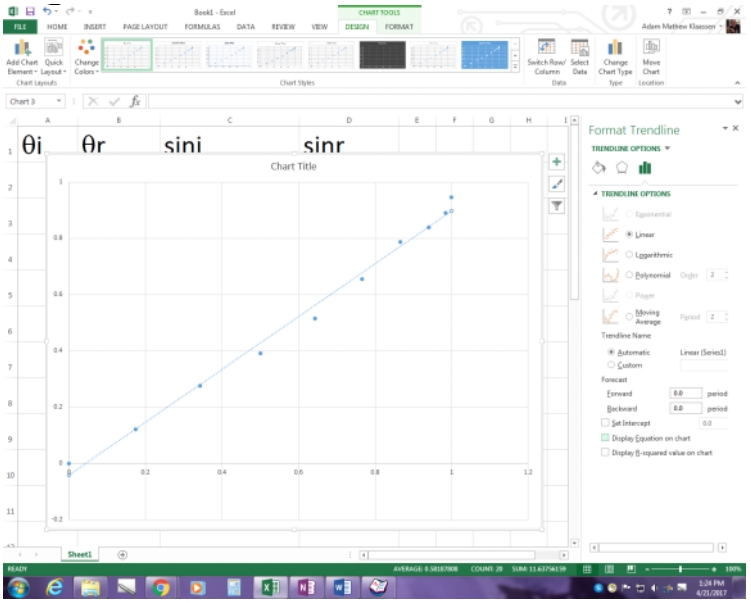
graphing on a spreadsheet
=SIN(A2*3.14159/180)

select the data



θi	θr	sini	sinr
0	0	0	0
10	7	0.173648	0.1219
20	16	0.3420199	0.2756
30	23	0.4999996	0.3907
40	31	0.6427872	0.515
50	41	0.766044	0.6561
60	52	0.866025	0.788
70	57	0.9396923	0.8387
80	63	0.9848075	0.891
90	71	1	0.9455

insert scatterpoint graph
right click on data



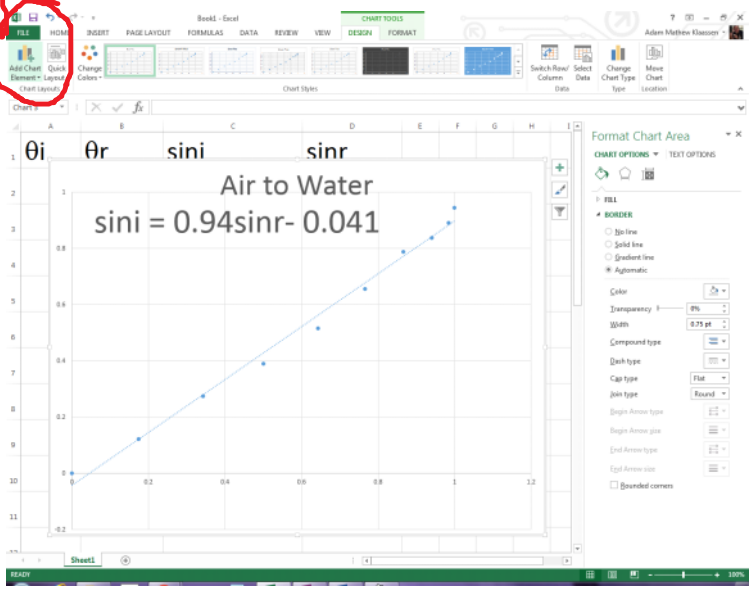
click add trendline -show equation on chart
change the equation from

y = 0.9389x - 0.0413

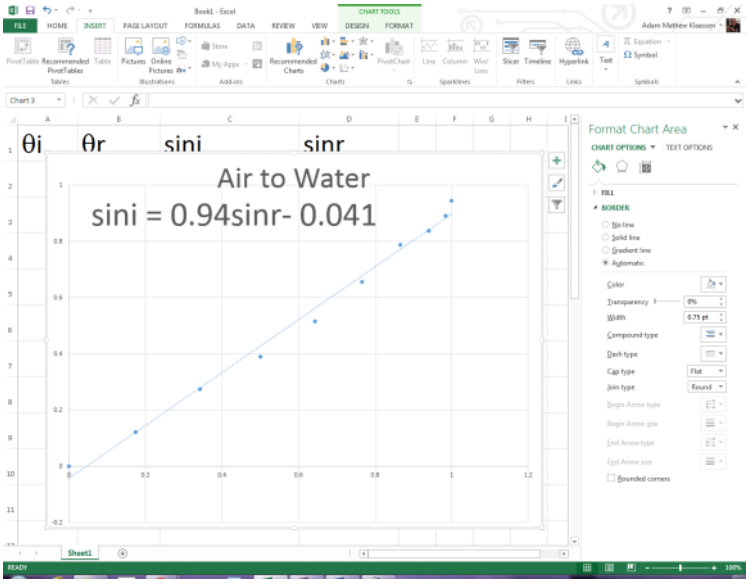
to

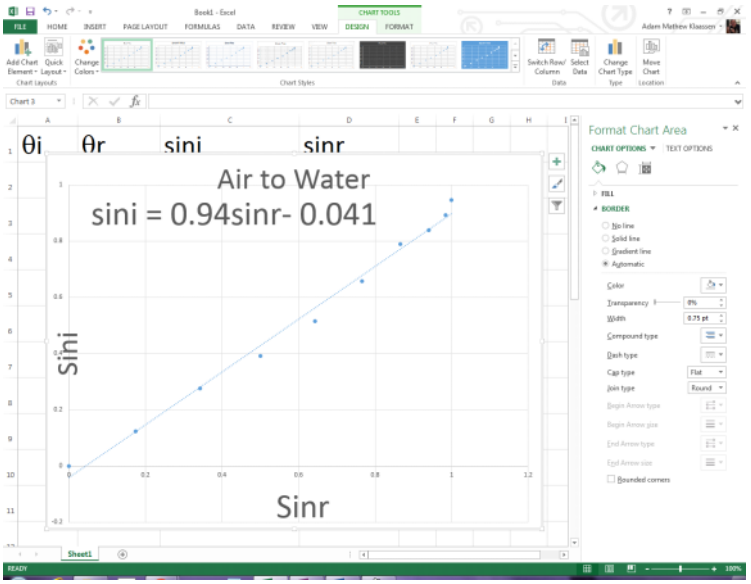
sini = 0.94 sinr - 0.041

label the axes



print and staple to your lab report


θi θr sini sinr
Air to Water
sini = 0.94sinr- 0.041
Format Chart Area


θi θr sini sinr
Air to Water
sini = 0.94sinr- 0.041
Sini
Sinr
Format Chart Area